



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/355,946	08/16/1999	MASANORI NAKAMURA	P7318-9007	7148

23353 7590 07/17/2003

RADER FISHMAN & GRAUER PLLC
LION BUILDING
1233 20TH STREET N.W., SUITE 501
WASHINGTON, DC 20036

EXAMINER

GOFF II, JOHN L

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 07/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/355,946

Applicant(s)

NAKAMURA ET AL.

Examiner

John L. Goff

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-12 is/are pending in the application.
- 4a) Of the above claim(s) 1-4, 9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5, 7, 8, 11 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is in response to Amendment C filed on 4/30/03. All previous objections to the specification have been overcome. In view of applicant's amendment the 35 USC 102 rejections over Rasmussen and Caiola et al. are withdrawn.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Continued Examination Under 37 CFR 1.114

3. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 4/30/03 has been entered.

Claim Rejections - 35 USC § 103

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 1733

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen (U.S. Patent 3,471,353) in view of either Frese (U.S. Patent 3,514,359) or Iverson (U.S. Patent 2,628,180).

Rasmussen discloses that it is known to bond two oriented polyolefin (e.g. polyethylene, polypropylene, etc.) sheets or films using a method comprising depositing a solvent on a surface of the sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Column 2, lines 4-30 and Column 4, lines 8-13). Rasmussen is not limited to any particular solvent. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the solvent taught by Rasmussen a solvent comprising a polymerizable monomer (e.g. styrene) and peroxide as solvents of this type were well known in the art for bonding two polyolefin sheets as shown for example by either one of Frese or Iverson.

Frese discloses bonding two polyolefin sheets or foils using a method comprising depositing a solvent on one or both sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article. Frese teaches the solvent comprises a polymerizable monomer (e.g. styrene) and peroxide wherein the peroxide is added to increase the speed of polymerization (Column 1, lines 36-38 and 52-72 and Column 2, lines 1-17 and 42-51). Iverson discloses bonding a polystyrene body to another substrate using a solvent bonding process wherein the solvent comprises styrene monomer and peroxide (Column 1, lines 1-19 and 36-39 and Column 3, lines 56-60).

Art Unit: 1733

As to the oriented polyolefin sheets taught by Rasmussen having an average coefficient of linear expansion (LEC) not exceeding 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ range, it is noted the oriented polyolefin materials employed in Rasmussen are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 9, lines 7-11).

Further, applicants specification indicates that unoriented polyolefins have an average LEC of greater than 5×10^{-5} ($^{\circ}\text{C}$) and that orientation of such polyolefins results in an average LEC value not exceeding 5×10^{-5} ($^{\circ}\text{C}$) (Page 7, lines 13-19).

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen and either Frese or Iverson as applied above in paragraph 5, and further in view of Ikenaga et al. (U.S. Patent 4,717,624).

Rasmussen and either Frese or Iverson as applied above teach all of the limitations in claim 8 except for a teaching on using oriented polyolefin sheets that comprise a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the oriented polyolefin sheets taught by Rasmussen as modified by either Frese or Iverson oriented films comprising a plurality of stacked sheets wherein an oriented sheet having minus values for the average coefficient of linear expansion is covered by an oriented or unoriented sheet having a plus value for the average coefficient of linear expansion as suggested by Ikenaga et al. in order to form laminated composites with improved dimensional stability.

Ikenaga et al. are directed to composites (including polyolefin composites) having improved dimensional stability comprising a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion (Column 1, lines 20-29 and 43-68 and Column 2, lines 12-26 and 30-43 and Column 11, lines 38-30 and Column 12, lines 41-53).

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen and either Frese or Iverson as applied above in paragraph 5, and further in view of Drake (U.S. T888,001).

Rasmussen and either Frese or Iverson as applied above teach all of the limitations in claims 11 and 12 except for a teaching on heat treating the oriented polyolefin sheets before bonding. It would have been obvious to one of ordinary skill in the art at the time the invention was made to heat treat the oriented polyolefin sheets taught by Rasmussen as modified by either Frese or Iverson before bonding as it was well known in the art as shown for example by Drake to heat treat a polyolefin sheet so that it better adheres to additional sheets/substrates.

Drake discloses bonding two polyolefin sheets/films together using a method comprising heat treating (e.g. by flame treatment, electrical discharge treatment, etc.) a surface of each film followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Abstract).

8. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frese in view of Rasmussen.

Art Unit: 1733

Frese discloses bonding two polyolefin sheets or foils using a method comprising depositing a solvent on one or both sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article. Frese teaches the solvent comprises a polymerizable monomer such as styrene and peroxide wherein the peroxide is added to increase the speed of polymerization (Column 1, lines 36-38 and 52-72 and Column 2, lines 1-17 and 42-51). Frese is silent as to using oriented or unoriented polyolefin sheets. It would have been well within the purview of one of ordinary skill in the art at the time the invention was made to use as the polyolefin sheets taught by Frese oriented polyolefin sheets as it was well known in the art to bond two oriented polyolefin sheets together using a solvent bonding process as shown for example by Rasmussen.

Rasmussen discloses that it is known to bond two oriented polyolefin (e.g. polyethylene, polypropylene, etc.) sheets or films using a method comprising depositing a solvent on a surface of the sheets followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Column 2, lines 4-30 and Column 4, lines 8-13).

As to the oriented polyolefin sheets taught by Frese as modified by Rasmussen having an average coefficient of linear expansion (LEC) not exceeding 5×10^{-5} ($^{\circ}\text{C}$) in the 20-80 $^{\circ}\text{C}$ range, it is noted the oriented polyolefin materials employed in Frese as modified by Rasmussen are the same as those claimed by applicant and they are consistent and in agreement with applicants specification (Page 9, lines 7-11). Further, applicants specification indicates that unoriented polyolefins have an average LEC of greater than 5×10^{-5} ($^{\circ}\text{C}$) and that orientation of such polyolefins results in an average LEC value not exceeding 5×10^{-5} ($^{\circ}\text{C}$) (Page 7, lines 13-19).

Art Unit: 1733

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Frese and Rasmussen as applied above in paragraph 8, and further in view of Ikenaga et al.

Frese and Rasmussen as applied above teach all of the limitations in claim 8 except for a teaching on using oriented polyolefin sheets that comprise a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use as the oriented polyolefin sheets taught by Frese as modified by Rasmussen oriented films comprising a plurality of stacked sheets wherein an oriented sheet having minus values for the average coefficient of linear expansion is covered by an oriented or unoriented sheet having a plus value for the average coefficient of linear expansion as suggested by Ikenaga et al. in order to form laminated composites with improved dimensional stability.

Ikenaga et al. are directed to composites (including polyolefin composites) having improved dimensional stability comprising a plurality of stacked sheets wherein oriented sheets having minus values for the average coefficient of linear expansion are covered by oriented or unoriented sheets having plus values for the average coefficient of linear expansion (Column 1, lines 20-29 and 43-68 and Column 2, lines 12-26 and 30-43 and Column 11, lines 38-30 and Column 12, lines 41-53).

10. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frese and Rasmussen as applied above in paragraph 8, and further in view of Drake.

Frese and Rasmussen as applied above teach all of the limitations in claims 11 and 12 except for a teaching on heat treating the oriented polyolefin sheets before bonding. It would

Art Unit: 1733

have been obvious to one of ordinary skill in the art at the time the invention was made to heat treat the oriented polyolefin sheets taught by Frese as modified by Rasmussen before bonding as it was well known in the art as shown for example by Drake to heat treat a polyolefin sheet so that it better adheres to additional sheets/substrates.

Drake discloses bonding two polyolefin sheets/films together using a method comprising heat treating (e.g. by flame treatment, electrical discharge treatment, etc.) a surface of each film followed by applying pressure and heat to bond the two sheets together to form a polyolefin article (Figure and Abstract).

Response to Arguments

11. Applicant's arguments with respect to claims 5, 7, 8, 11, and 12 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues "although Iverson teaches that polymerizable monomers can be used to dissolve sheets of polyolefins, Iverson does not teach that such monomers would be combined with a peroxide compound". It is noted Iverson teaches using peroxide with the polymerizable monomers when it is desired to make a very hard joint (Column 3, lines 56-60).

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **John L. Goff** whose telephone number is **703-305-7481**. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

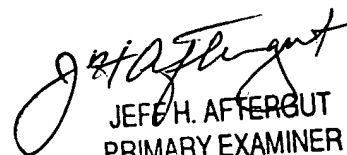
Art Unit: 1733

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Ball can be reached on 703-308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



John L. Goff
July 9, 2003



JEFF H. AFTERGUT
PRIMARY EXAMINER
GROUP 1300